



**UNITED STATES AIR FORCE  
ARMSTRONG LABORATORY**

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**FEMALE AND MALE AIR FORCE  
STUDENT PILOTS: ATTITUDES  
TOWARD MIXED-GENDER  
SQUADRONS, CAREER ISSUES,  
AND COMBAT FLYING**

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## PREFACE

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Female and Male Air Force Student Pilots:  
Attitudes toward Mixed-gender Squadrons,  
Career Issues, and Combat Flying.

SUMMARY

Air Force officers beginning pilot training were surveyed regarding their opinions and attitudes toward their flying and military careers. Differences between women and men were found in long term goals, opinions regarding mixed-gender squadrons, POW concerns, and combat attitudes. Of particular interest are the facts that a large percentage of men believe that work situations will be worsened by the inclusion of women and that a large percentage of women believe flying in combat should be optional.

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INTRODUCTION

Background: The integration of women into military aviation roles has largely been dictated by administrative action. The U. S. Army Aviation Flight Program was opened to women in 1973 (Voge and King, 1996), the U. S. Air Force began training women to be pilots and navigators in 1976 (Jones, 1983), and the U. S. Navy began training women to be naval flight officers in 1979 (Baisden, 1992). In 1993, many of the restrictions on women flying combat missions have also been lifted (U. S. Government Printing Office, 1992). These changes have occurred mostly for socio-political reasons, and many questions regarding the impact of these changes have not been answered.

The question of the impact of gender integration on unit cohesion was reported by Devilbiss (1985). He found evidence of effective male and female bonding of a nonsexual nature. He hypothesized that common experience was crucial, and gender incidental, to interpersonal bonding in this situation. He reported that cohesion is based on the commonality of experience, shared risk, and mutual experiences of hardship, not on gender distinctions. When combat readiness was assessed, unit members who were particularly knowledgeable were prized, regardless of their gender.

A comparison of female and male USAF pilots' attitudes was recently reported by McGlohn, King, Butler, and Retzlaff (1997). Men and women had different factors motivating them to fly. More women chose to enter pilot training because they went to the Air Force Academy and were pilot qualified (34%), while more men chose to enter pilot training because they wanted to fly since childhood (45%).

The majority of men and women reported either positive or neutral working relationships with both genders in their squadrons. The squadron members displaying the most problems interacting with women in the squadron were the older males, including enlisted crew and some commanders. The majority of both men (56%) and women (78%) believed working relationships in their squadron were improved with the presence of both genders. Both men and women believed this improvement was due to the greater access to the broadened perspective of both genders in a mixed-gender squadron.

Next, a greater number of women reported sexual discrimination as their most significant career stress (16%), as opposed to men, who did not report sexual discrimination as a career stress. When asked to compare their stresses to other members of their squadron, men more often felt women had greater stresses compared to their own (45%), while women felt the

stresses of men and women in the squadron were the same (58%).

Both the majority of men (67%) and the majority of women (82%), believed they were prepared to be POWs. Both men and women cited their training as the reason they felt prepared. Men and women, however, had different concerns about being a POW. More women were concerned with both sexual assault (22%) and being exploited to manipulate other POW's (20%), while men were concerned with physical harm (31%) and their families' concerns (20%).

The vast majority of both men (91%) and women (86%) in the study, wanted to fly in combat. Both genders explained their desire to fly in combat stemmed from a desire to fulfill their responsibilities as a pilot. Both men (97%) and women (98%) reported they would feel comfortable flying in combat with both genders. Equal numbers reported they did not notice gender differences in their crews when flying and that aviation standards are performance, rather than gender, based. Both men (87%) and women (80%), believed pilots should not have a choice as to whether or not to fly in combat. The majority of both genders believed pilots should not have a choice because they are obligated to fulfill the mission of the Air Force. The majority of men (73%), however, reported that they would be more protective of a woman in combat while only 6% of women reported they would be more protective of a crew member in combat due to gender. Men cited protection of women as part of their code of ethics as the reason they would be more protective (42%). Men also noted that women are at greater risk of being harmed in prisoner of war situations than men (30%).

Stress coping styles were similar for men and women. Women reported exercise (36%) and internalizing problems (12%), as their methods for coping with stress. Men reported the same; 31% cited exercise and 28% internalized their problems as ways to cope with stress.

Purpose: The purpose of the current work is to extend the findings of McGlohn, et al. (1997). While that study looked at a sample of mid-career Air Force pilots, there is a need to look at the attitudes and opinions of new pilots just beginning training. It is the intent of this study to survey the motivations and goals, work relationships, POW concerns, combat, and stress coping opinions and attitudes of such a sample.

#### METHOD

Subjects: A total of 648 student pilots volunteered to take the survey. Of this number, 55 were female and 593 were male. The average age of the subjects was 22.6 (sd=2.9).

Procedure: All subjects were tested during Enhanced Flight Screening (King and Flynn, 1995; Callister and Retzlaff, 1996). Approximately 40% of the subjects were tested at the United States Air Force Academy and the rest at Brooks Air Force Base



during their time at the Hondo, TX, facility. The Hondo facility provides screening for those having received commissioning through Officer Training School, Reserve Officer Training Commissioning, the Air National Guard, and the Air Force Reserve.

## RESULTS

Table 1 provides the questions and frequencies of answers. The statistical analysis of this data is somewhat difficult. Traditionally, a Chi Square test would be used to determine if one gender endorsed particular answers more often than the other gender. For example, Question 1 has 6 possible responses. A Chi Square could be used to look at differences here by calculating the statistic for the 2 (gender) by 6 (responses) matrix. The problem is, however, that the assumptions of the Chi Square test would be violated. Specifically, each of the 12 cells should have at least 10 observations. Many of these do not. With only 55 female subject and 6 possible responses, there are simply too many response categories with very few observations.

There is, however, a need to bring some statistical approach to the data in order to make any inferences as conservative as possible. On questions where there are only two possible responses such as Questions 4, 8, 9, and 10, 2 by 2 Chi Square tests are calculated. On the other items, Chi Squares are calculated at the response level as opposed to the question level. Individual responses were analyzed for significance when a large and probably clinical level of difference was noted. All responses where there was at least a difference of 10% across genders were analyzed. For example, there is a 13% difference on response C of Question 1. Here, 42% of females had wanted to be pilots "since childhood" and 57% of males endorsed this alternative. A 2 by 2 Chi Square was calculated on these responses by comparing those 42 and 57 percentages to the 58 and 43 percentages respectively who endorsed other responses. This Chi Square was equal to 4.59 and was not significant. In general, differences of 13% across genders resulted in significant differences. While this is less than a "pure" statistical solution, it allows for some level of statistical inference. Inferences from these tests are and should be viewed with caution.

### Motivation and Goals

A number of differences are seen across the two groups as well as non-significant differences. No differences were found across genders for "Why do you want to be a pilot?". Generally, subjects had either wanted to be pilots since childhood or had entered training because of their belief that it would be "exciting or fun". As for long term flying goals, males were more interested in flying fighter aircraft (Chi Square = 9.26,  $p < .05$ ) and females were more interested in flying for the airlines (Chi Square = 13.60,  $p < .05$ ). Long term non-flying goals were not different across genders. Here large numbers of both groups wanted to start families.

## Working Relationships

Females felt mixed gender squadrons would result in better working conditions than males (Chi Square = 9.13,  $p < .05$ ). Even with the differences, a majority of both groups (females = 87% and males = 68%) felt working relationships would be better. These magnitudes and differences are slightly higher than the findings of McGlohn, et al. (1997) where 78% of rated females and 56% of rated males felt conditions were better.

Specifically, for those feeling it would be worse, males (18%) believed they would "Have to be more aware of gender issues" (Chi Square = 5.44,  $p < .05$ ). Specifically for those who felt it would be better, females (51%) felt that it would be better due to having "access to the broadened perspective of both genders" (Chi Square = 6.80,  $p < .05$ ).

## POW Concerns

No differences were found for "Are you prepared to be a POW?" Only 56% of females and 62% of males responded affirmatively. This is lower than the 82% and 67%, respectively, for the McGlohn, et al. (1997) subjects. Of course, the McGlohn, et al. subjects were rated pilots who had attended survival school. It is not that the current subjects responded that they were not prepared but that they were uncertain. Females were more concerned with sexual assault as a POW (Chi Square = 24.49,  $p < .05$ ) while males were more worried about families back home (Chi Square = 9.92,  $p < .05$ ). A good number of both groups, around 20%, were worried about being exploited or used to hurt others.

## Combat

No differences were found for "Why would you want to fly in combat?" A majority of both groups felt it was their "job and responsibility". Females believed that they would be more comfortable flying combat in a mixed squadron than males (Chi Square = 13.80,  $p < .05$ ). Indeed, 20% of the males would not feel comfortable. Males felt they would be more protective of one sex than the other flying in combat (Chi Square = 45.76,  $p < .05$ ). Females more often expressed the belief that a pilot should have the right to elect not flying in combat (Chi Square = 9.21,  $p < .05$ ). With 51% of female subjects having this belief and 31% of males, there is a far stronger feeling in this regard than the McGlohn, et al. subjects with only 20% and 13% respectively. Apparently, mid-career pilots see less individual choice when it comes to combat.

## Stress Coping

Finally, there were no significant differences for how the student pilots cope with stress. The most common approach with both groups, in the mid-30% range, was the use of exercise and sports. Religion was a remarkably low 2% for each group.

## CONCLUSIONS

Interview survey data pointed to a number of differences in the perception of concerns and career desires between female and male pilots. Long term flying goals are different with men primarily interested in fighter aircraft and the women in flying for the airlines. Of particular interest in the data are the concerns men express in integrated squadron and combat units. There is concern among the males that working relationships will be strained with females in mixed-gender units. The male subjects consider this to be a very important issue and more importantly it does not seem to be resolving. Female subjects view the mixed-gender squadrons as an opportunity to diversify perspectives on problems.

A large number of the students are unsure of their reaction to POW situations. The female subjects are particularly concerned about sexual assault and the male subjects about families back home. It is important to note that these subjects had not yet received training in survival, evasion, resistance, and escape. It is hoped that AF Survival School will give the young officers more confidence.

The other interesting policy issue is that the female pilots appear to be concerned about actual combat. They believe that combat assignments should be elective. Again, a large number of the male subjects felt uncomfortable flying with women in combat. Finally, some of this discomfort may be arising from the male subjects concern that they would differentially protect women in combat, perhaps to the detriment of the mission and safety. This issue needs to be addressed.

The differences between subject groups should not obscure the fact that the two groups were generally positive toward mixed-gender squadrons. Evidence of the probable successful integration of women into previously all-male military units is demonstrated in our study by the majority of opinions that mixed-gender units would have better working relationships.

The current work has shown a number of interesting differences between female and male student pilots as well as between incoming and experienced pilots. It is critical that such work continue.

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Table 1

## Interview Responses

	FEMALE		MALE	
	N=55		N=593	
	N	%	N	%
<hr/>				
<u>MOTIVATION AND GOALS</u>				
<hr/>				
<u>1. Why do you want to be a pilot?</u>				
A. A family member was a pilot or aircrew member.	1	2	11	2
B. It would be exciting or fun.	19	35	176	30
C. I have always wanted to be a pilot since childhood.	23	42	337	57
D. I am a private pilot.	3	5	14	2
E. It would be stable and lucrative profession.	3	5	18	3
F. I went to the Air Force Academy and was pilot qualified.	1	2	9	2
G. Other.	5	9	28	5
<u>2. What are your long-term flying career goals?</u>				
A. Fly as long as I can on active duty before I have to take a staff job.	7	13	118	20
B. Become an aircraft commander.	2	4	43	7
C. Become an instructor pilot.	2	4	14	2
D. Fly a fighter aircraft.	5	9	166	28*
E. Fly for the airlines.	15	27	62	10*
F. Become a test pilot.	2	4	36	6
G. Become an astronaut.	9	16	107	18
H. Fly for the reserves.	8	15	16	3
I. Other.	5	9	31	5
<u>3. What are your long-term non-flying goals?</u>				
A. Get a lucrative civilian job.	7	13	54	9
B. Start a family.	25	45	252	42
C. Become a flight commander.	0	0	9	2
D. Become a squadron commander.	3	5	76	13
E. Become an operations officer.	0	0	6	1
F. Become a General officer.	6	11	136	23
G. Other.	14	25	60	10

## WORKING RELATIONSHIPS

### 4. Do you imagine that working relationships are better or worse in mixed-gender squadrons?

• A. Worse	7	13	192	32*
B. Better	48	87	401	68

### 4a. If Worse: How would you imagine that working relationships are worse in mixed-gender squadrons?

A. Increased sexual tension.	1	2	35	6
B. Greater conflict.	0	0	37	6
C. Can't be myself with my friends at work.	0	0	8	1
D. "More competition for good jobs, thus resentment."	3	5	7	1
E. Have to be more aware of gender issues.	3	5	105	18*

### 4b. If Better: How would you imagine that working relationships are better in mixed-gender squadrons?

A. Less mystery about what it will be like to work closely with the opposite sex.	1	2	6	1
B. Increased opportunities for everyone.	3	5	25	4
C. Increased awareness of gender issues.	2	4	19	3
D. Have access to the broadened perspective of both genders.	28	51	198	33*
E. More diversity in the workplace.	14	25	153	26

## POW CONCERNS

### 5. Are you prepared to be a POW?

A. Yes.	31	56	366	62
B. No.	6	11	49	8
C. Don't know.	18	33	178	30

### 6. What is your greatest concern about being a POW?

A. Sexual assault.	8	15	13	2*
B. Physical harm.	10	18	62	10
C. Psychological harm.	3	5	19	3
D. Letting down my squadron mates if I break.	2	4	19	3
E. Letting down my country if I break.	7	13	112	19
F. Presence of female POW's.	0	0	15	3
G. Concerns about my family at home.	5	9	171	29*
• H. Conditions of the camp.	0	0	5	1
I. Length of time in captivity.	5	9	52	9
J. Being exploited or used to hurt others.	14	25	112	19
• K. Other.	1	2	13	2

## COMBAT

### 7. Why would you want to fly in combat?

A. It will be my job and responsibility.	33	60	335	56
B. It is what I will be trained to do.	10	18	108	18
C. It would be exciting.	2	4	48	8
D. I could prove myself in the ultimate test.	6	11	88	15
E. I could improve my chances of advancing my career.	0	0	2	0
F. I don't want to fly in combat.	4	7	12	2

### 8. Would you feel comfortable flying in combat with both genders?

A. Yes.	55	100	472	80*
B. No.	0	0	121	20

### 9. Would you be more protective of one or the other gender in combat?

A. Yes.	3	5	315	53*
B. No.	52	95	278	47

### 10. Should any pilot have a choice as to whether or not to fly in combat?

A. Yes.	28	51	183	31*
B. No.	27	49	410	69

## STRESS COPING

### 11. How do you cope with stress?

A. Good communication with significant others.	13	24	82	14
B. Exercise or sports.	20	36	224	38
D. Alcohol.	3	5	55	9
E. I take care of the problem on my own.	4	7	44	7
F. I talk about stress with friends.	6	11	65	11
G. Through my religion.	1	2	11	2
H. Throwing myself into my work.	6	11	98	17
I. Relaxing hobbies or activities.	2	4	14	2

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\* denotes significant Chi Square test